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Amendments to the Claims:

Please cancel claims 2, 4, 14, 26, 28 and 38 and amend claims 1, 5-12, 15, 20, 22, 25, 29-35, 39, and 44 as follows. The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended). A method operative for asynchronously mirroring a selected data object from at least one local storage device (SDL) into at least one remote storage device (SDRx), the at least one local storage device being
5 coupled to a first processing facility (HL), and the at least one remote storage device being coupled to a second processing facility (HR), and where the at least one local storage device, the at least one remote storage device, the first and the second
10 processing facility are coupled to a network connectivity comprising pluralities of users, of processing facilities and of storage devices, the method comprising the steps of:

running a mirroring functionality in the first and in the second processing facility, the mirroring functionality comprising:

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15 a freeze procedure ~~applied~~ for freezing the selected
data object at any desired instant in time as a source volume
(SV), and

a copy procedure for copying the frozen selected data
object into the at least one remote storage device,

20 ~~creating simultaneously to the application of the freeze and~~
~~copy procedure a local auxiliary volume in the local storage~~
~~device to which updates addressed to the frozen selected data~~
~~object are redirected, of a remote volume having a same size as~~
~~the frozen source volume in the remote storage device, forming in~~
25 ~~the local storage device a resulting source volume including the~~
~~frozen source volume and the local auxiliary volume, and copying~~
~~the frozen source volume to the remote volume,~~

~~repeating successively the freeze and copy procedure by~~
~~freezing a last created local auxiliary volume and simultaneously~~
30 ~~creating a next local auxiliary volume to which updates addressed~~
~~to the frozen data are redirected, creating a next remote volume,~~
~~and adding the last created local auxiliary volume to a last~~
~~formed resulting source volume to form a new resulting source~~
~~volume, and copying a before last frozen local auxiliary volume~~
35 ~~to a last created remote volume,~~

permitting use and updating of the selected data object in
parallel to running the mirroring functionality, and

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commanding, by default, repeated run of the mirroring
functionality for copying updates to the selected data object,
40 unless receiving a command for a mirroring break,

whereby the selected data object residing in the at least
one local storage device is copied and sequentially updated into
the at least one remote storage device, and ~~whereby auxiliary
volumes frozen by successive freeze procedures contain,~~
45 ~~respectively, successive updates directed to the data object~~
wherein the mirroring functionality further comprises the steps
of:

applying the freeze procedure for freezing the selected data
object as a source volume,

50 creating at least one local auxiliary volume to which
updates addressed to the selected data object are redirected, the
selected data object corresponding to one of the at least one
local auxiliary volume,

creating at least one remote volume in each of the at least
55 one remote storage device, to correspond to each one local
auxiliary volume created,

forming in the at least one local storage device, of at
least one resulting source volume comprising the frozen selected
data object and the at least one local auxiliary volume, and

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60 applying the copy procedure for copying the frozen selected data object from the at least one resulting source volume into the at least one remote storage device.

Claim 2 (Cancelled).

Claim 3 (Original). The method according to Claim 1, further comprising:

applying the mirroring functionality simultaneously to more than one data object.

Claim 4 (Cancelled).

Claim 5 (Currently Amended). The method according to Claim [[2]] 1, wherein the mirroring functionality further comprises:

applying the freeze procedure for simultaneously freezing more than one data object.

Claim 6 (Currently Amended). The method according to Claim [[2]] 1, wherein the mirroring functionality further comprises:

applying the copy procedure to ~~simultaneously~~ copy simultaneously more than one frozen selected data object.

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Claim 7 (Currently Amended). The method according to Claim
[[2]] 1, further comprising:

~~simultaneously~~ mirroring simultaneously one single data
object residing in one local storage device into more than one
5 remote storage device.

Claim 8 (Currently Amended). The method according to Claim
[[2]] 1, further comprising:

~~simultaneously~~ mirroring simultaneously more than one single
data object from one local storage device into one remote storage
device.

Claim 9 (Currently Amended). The method according to Claim
[[2]] 1, further comprising:

~~simultaneously~~ mirroring simultaneously a plurality of
single data objects residing respectively in a same plurality of
5 local storage devices into one remote storage device.

Claim 10 (Currently Amended). The method according to Claim
[[2]] 1, further comprising:

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~~simultaneously~~ mirroring simultaneously a plurality of
single data objects residing in one local storage device
5 ~~respectively~~ into a plurality of remote storage devices.

Claim 11 (Currently Amended). The method according to Claim
[[2]] 1, further comprising:

~~simultaneously~~ mirroring simultaneously one single data
object residing in each one local storage device out of a
5 plurality of local storage devices into one remote storage
device.

Claim 12 (Currently Amended). The method according to Claim
1, wherein mirroring further comprises:
at a selected point in time:

starting a mirroring cycle,
5 freezing the selected data object,
creating at least one local auxiliary volume (AVL) in the at
least one local storage device (SDL) and at least one remote
volume (RV) in the at least one remote storage device (SDRx),
forming at least one resulting source volume comprising the
10 frozen selected data object and the local auxiliary volume (AVL),
and
after the selected point in time:

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copying the frozen selected data object from the resulting
source volume into the at least one remote volume until ~~copying~~
15 ~~is completed~~ completion of copy,

redirecting to the local auxiliary volume the updates
addressed to the frozen selected data object,

permitting use of the selected data object during mirroring,
by allowing read and write operations associated with the
20 resulting source volume, and

repeating a next mirroring cycle by default command, after
completion of copying to the at least one remote storage device,
unless receiving a command for mirroring break.

Claim 13 (Previously Presented). The method according to
Claim 12, wherein mirroring further comprises:

starting a next mirroring cycle at a next point in time
occurring after completion of copying to the at least one remote
5 storage device,

freezing the resulting source volume,

creating an ultimate local auxiliary volume in the local
storage device and an ultimate remote volume in the at least one
remote storage device,

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10 forming an ultimate resulting source volume comprising the
penultimate resulting source volume and the ultimate local
auxiliary volume , and
after the next point in time:

copying the penultimate local auxiliary volume into the
15 ultimate remote volume, and,

redirecting to the ultimate local auxiliary volume of the
updates addressed to the frozen selected data object,


permitting use of the selected data object during mirroring,
by allowing read and write operations associated with the
20 ultimate resulting source volume, and
after completion of copy into the ultimate remote volume:

synchronizing the penultimate local auxiliary volume into
the frozen selected data object,

synchronizing the at least one ultimate remote volume into
25 the penultimate remote volume by command of the second processing
facility (HR), and

repeating, by default command, of a next mirroring cycle
after completion of copy to the at least one remote storage
device, unless receiving command for mirroring break.

Claim 14 (Cancelled).



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Claim 15 (Original). The method according to Claim [[14]]
13, wherein mirroring further comprises:

storing in the at least one remote storage device of a
complete mirrored copy of the selected data object comprising
5 updates entered thereto at the time when copy of the before to
penultimate local auxiliary volume was completed.

Claim 16 (Original). The method according to Claim 1,
wherein:

mirroring is applicable to a data object selected from the
group consisting of data volumes, virtual volumes, data files,
5 system files, application programs, operation systems, data
structures, and data base records.

Claim 17 (Original). The method according to Claim 1,
wherein:

mirroring is applicable to a network connectivity selected
from the group consisting of local area networks, wide area
5 networks and storage area networks.

Claim 18 (Original). The method according to Claim 1,
wherein mirroring further comprises:

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repeating operation of the mirroring functionality at
discrete repetition intervals of time defined as lasting at least
5 as long as duration of copying of the ultimate local auxiliary
volume to the ultimate remote volume.

Claim 19 (Original). The method according to Claim 1,
wherein mirroring further comprises:

10 synchronizing updates to overwrite the selected data object,
and

synchronizing a later remote volume to overwrite the
penultimate resulting first remote volume.

Claim 20 (Currently Amended). The method according to Claim
1, wherein:

the storage space for the selected data object comprises a
contents span selected from the group of contents spans
5 consisting of a part of the contents, the whole contents, and
more than the contents of the local storage device.

Claim 21 (Previously Presented). The method according to
Claim 1, wherein mirroring further comprises:
at the local storage device (SDL) at time $t = 1$:

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setting a counter to $s = 1$ and creating a local auxiliary

5 volume s ,

freezing the selected data object and comprising the local
auxiliary volume s and the frozen selected data object into a
resulting source volume s ,

10 permitting use of the frozen data object by allowing read
and write operations associated with the resulting source volume
 s , and

at the at least one remote storage device:

creating at time t of a remote volume s , at least equal in
size to the data object, and

15 starting from the time t :

copying the frozen data object from the resulting source
volume s into the remote volume s until completion of copy,
whereby the data object frozen at time t is mirrored in the at
least one remote storage device.

Claim 22 (Currently Amended). The method according to Claim
[[15]] 21, wherein mirroring further comprises:
at the local storage device at time $t = t + 1$ occurring after
completion of copy to the at least one remote storage device:

- 5 a. increasing the counter to $s = s + 1$,
b. creating a local auxiliary volume s ,

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c. freezing the resulting source volume s - 1, and
comprising the local auxiliary volume s and the resulting source
volume s - 1 into a resulting virtual volume s, and

10 d. permitting use of the selected data object by allowing
read and write operations associated with the resulting source
volume s, and

at the at least one remote storage device :

e. creating at time t of a remote volume s at least equal in
15 size to the source volume, and
starting from the time t:

f. copying the local auxiliary volume s - 1 from the
resulting source volume s into the remote volume s and completing
copy,

20 g. operating the second processing facility for
synchronization, by overwriting, of the remote volume s onto the
remote volume s - 1, and
at the local storage device (SDL):

h. operating the first processing facility for
25 synchronizing, by overwriting, of the local auxiliary volume s -1
onto the selected frozen data object, and

repeating mirroring after completion of step f, by default
repetition of the steps a to h, unless mirroring break is
commanded.

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Claim 23 (Previously Presented). The method according to
Claim 22, wherein:

the local auxiliary volumes, the source volumes and the
remote volumes are selected from the group consisting of volumes,
5 virtual or logical volumes, and files.

Claim 24 (Original). The method according to Claim 22,
further comprising:

storing in the at least one remote storage device at the
time t of a complete mirrored copy of the selected data object
5 comprising updates entered thereto at the time $t - \Delta t$.

Claim 25 (Currently Amended). A system for asynchronously
mirroring a selected data object from at least one local storage
device (SDL) into at least one remote storage device wherein the
system comprises at least one local storage device, at least one
5 remote storage device, a first processing facility and a second
processing facility, the at least one remote storage device
(SDRx), ~~the at least one local storage device~~ being coupled to
the first processing facility (HL), and the at least one remote
storage device being coupled to the second processing facility
10 (HR), and where the at least one local storage device, the at

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least one remote storage device, the first and the second processing facility are coupled to a network connectivity comprising pluralities of users, of processing facilities and of storage devices, the system further comprising:

15 ~~a device means~~ for carrying out a mirroring functionality running in the first and in the second processing facility, the mirroring functionality comprising:

 a freeze procedure being applied for freezing the selected data object at any desired instant in time as a source

20 ~~volume, [[and]]~~

 a copy procedure for copying the frozen selected data object into the at least one remote storage device, ~~simultaneously to the application of the freeze and copy procedure creating:~~

25 ~~a local auxiliary volume in the local storage device to which updates addressed to the frozen selected data object are redirected, a remote volume having a same size as the frozen source volume in the remote storage device, forming in the local storage device of a resulting source volume including the frozen~~
30 ~~source volume and the local auxiliary volume, and copying the frozen source volume to the remote volume,~~

~~successively repeating the freeze and copy procedure by freezing the last created local auxiliary volume and~~

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~~simultaneously creating a next local auxiliary volume to which~~
35 ~~updates addressed to the frozen data are redirected, creating a~~
~~next remote volume, and adding the last created local auxiliary~~
~~volume to the last formed resulting source volume to form a new~~
~~resulting source volume, and copying the before last frozen local~~
~~auxiliary volume to the last created remote volume,~~
40 the selected data object being used and updated in parallel
to running of the mirroring functionality, and
the mirroring functionality being run by default command,
for copying updates to the selected data object, unless receiving
command for mirroring break,
45 whereby the selected data object residing in the at least one
local storage device is copied and sequentially updated into the
at least one remote storage device, ~~and whereby auxiliary volumes~~
~~frozen by successive freeze procedures contain, respectively,~~
~~successive updates directed to the data object wherein the~~
50 mirroring functionality further comprises:
the freeze procedure being applied for freezing the selected
data object as a source volume,
at least one local auxiliary volume to which updates
addressed to the selected data object are redirected, the
55 selected data object corresponding to one of the at least one
local auxiliary volume,

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at least one remote volume being created in each of the at least one remote storage device, to correspond to each one local auxiliary volume created,

60 a resulting source volume being formed in the at least one local storage device to comprise the frozen selected data object and the at least one local auxiliary volume, and

the copy procedure being applied for copying the frozen selected data object from the resulting at least one resulting
65 source volume into the at least one remote storage device.

Claim 26 (Cancelled).

Claim 27 (Original). The system according to Claim 25, further comprising:

the mirroring functionality being applied simultaneously to more than one data object.

Claim 28 (Cancelled).

Claim 29 (Currently Amended). The system according to Claim [[26]] 25, further comprising:

the freeze procedure being applied for freezing simultaneously more than one data object.

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Claim 30 (Currently Amended). The system according to Claim
[[26]] 25, further comprising:

the copy procedure being applied to copy simultaneously more
than one frozen selected data object.

Claim 31 (Currently Amended). The system according to Claim
[[26]] 25, wherein the mirroring functionality
further comprises:

a configuration for simultaneous mirroring of one single
5 data object residing in one local storage device into more than
one remote storage device.

Claim 32 (Currently Amended). The system according to Claim
[[26]] 25, wherein the mirroring functionality further comprises:

a configuration for mirroring of more than one single data
object simultaneously from one local storage device into one
5 remote storage device.

Claim 33 (Currently Amended). The system according to Claim
[[26]] 25, wherein the mirroring functionality further comprises:

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a configuration for mirroring simultaneously a plurality of
single data objects residing respectively in a same plurality of
5 local storage devices into one remote storage device.

Claim 34 (Currently Amended). The system according to Claim
[[26]] 25, wherein the mirroring functionality further comprises:
a configuration for mirroring simultaneously a plurality of
single data objects residing in one local storage device
5 respectively into a plurality of remote storage devices.

Claim 35 (Currently Amended). The system according to Claim
[[26]] 25, wherein the mirroring functionality further comprises:
a configuration for mirroring simultaneously one single data
object residing in each one local storage device out of a
5 plurality of local storage devices into one remote storage
device.

Claim 36 (Previously Presented). The system according to
Claim 25, wherein mirroring further comprises:
at a selected point in time:
a mirroring cycle being started,
5 the selected data object being frozen,

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at least one local auxiliary volume (AVL) being created in the at least one local storage device and at least one remote volume (RV) being created in the at least one remote storage device,

- 10 at least one resulting source volume being formed to comprise the frozen selected data object and the local auxiliary volume, and
after the selected point in time:

- 15 the frozen selected data object being copied from the resulting source volume into the at least one remote volume until completion of copy,

the updates addressed to the selected data object being redirected to the local auxiliary volume,

- 20 use of the selected data object being permitted during mirroring, by allowing read and write operations associated with the resulting source volume, and

a next mirroring cycle being repeated by default command, after completion of copy to the at least one remote storage device, unless receiving command for mirroring break.

Claim 37 (Previously Presented). The system according to Claim 36, wherein mirroring further comprises:

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a next mirroring cycle starting at a next point in time
occurring after completion of copy to the at least one remote
5 storage device, and

the resulting source volume being frozen,

an ultimate local auxiliary volume being created in the
local storage device and an ultimate remote volume being created
in the at least one remote storage device,

10 an ultimate resulting source volume being formed to consist
of the penultimate resulting source volume and of the ultimate
local auxiliary volume, and
after the next point in time:

the penultimate local auxiliary volume being copied into the
15 ultimate remote volume, and,

the updates addressed to the selected data object being
redirected to the ultimate local auxiliary volume in the ultimate
resulting source volume,

the selected data object being permitted for use during
20 mirroring by allowing read and write operations associated with
the ultimate resulting source volume and,
after completion of copy into the ultimate remote volume:

the penultimate local auxiliary volume being synchronized
into the frozen selected data object,

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25 the at least one ultimate remote volume being synchronized
into the penultimate remote volume by command of the second
processing facility (HR), and

a next mirroring cycle being repeated, by default command
after completion of copy to the at least one remote storage
30 device (SDR), unless a command for mirroring break is received.

Claim 38 (Cancelled).

Claim 39 (Currently Amended). The system according to Claim
[[38]] 36, wherein mirroring further comprises:

5 the at least one remote storage device storing a complete
mirrored copy of the selected data object comprising updates
entered thereto at the time when copy of the before to
penultimate local auxiliary volume was completed.

Claim 40 (Original). The system according to Claim 25,
further comprising:

the mirroring functionality being applicable to a data
object selected from the group consisting of data volumes,
5 virtual volumes, data files, system files, application programs,
operation systems, data structures, and data base records.

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Claim 41 (Original). The system according to Claim 25,
further comprising:

the mirroring functionality being applicable to a network
connectivity selected from the group consisting of local area
5 networks, wide area networks and storage area networks.

Claim 42 (Original). The system according to Claim 25,
further comprising:

the operation of the mirroring functionality being repeated
at discrete repetition intervals of time defined as lasting at
5 least as long as duration of copying of the ultimate local
auxiliary volume to the ultimate remote volume.

Claim 43 (Original). The system according to Claim 25,
further comprising:

the updates being synchronized to overwrite the selected
data object, and
5 a later remote volume being synchronizing to overwrite the
penultimate resulting first remote volume.

Claim 44 (Currently Amended). The system according to Claim
25, further comprising:

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the storage space for the selected data object comprising a contents span selected from the group of contents spans consisting of a part of the contents, the whole contents, and more than the contents of the local storage device.

Claim 45 (Previously Presented). The system according to Claim 25, further comprising:

at the local storage device (SDL) at time $t = 1$:

a mirroring cycle counter being set to $s = 1$ and a local auxiliary volume s being created,

the selected data object being frozen and comprising the local auxiliary volume s a resulting source volume s and the frozen selected data object into a resulting source volume s ,

the selected data object being permitted for use by allowing read and write operations associated with the resulting source volume s , and

at the at least one remote storage device:

a remote volume s being created at time t_0 and being at least equal in size to the data object, and

starting from the time t :

the frozen data object being copied from the resulting source volume s into the remote volume s until completion of copy,

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whereby the data object frozen at time t is mirrored in the at
20 least one remote storage device.

Claim 46 (Previously Presented). The system according to
Claim 45, further comprising:

at the local storage device at time $t = t + 1$ occurring after
completion of copy to the at least one remote storage device:

- 5 a. the mirroring cycle counter being increased to $s = s + 1$,
b. a local auxiliary volume s being created,
c. the resulting source volume $s - 1$ being frozen, and

comprising the local auxiliary volume s and the resulting source
volume $s - 1$ into a resulting source volume s , and

- 10 d. the selected data object being permitted for use by
allowing read and write operations associated with the resulting
local volume s , and

at the at least one remote storage device:

- e. a remote volume s being created at time t with a size at
15 least equal to the size of the source volume, and
starting from the time t :

f. the local auxiliary volume $s - 1$ being copied from the
resulting source volume s into the remote volume s until copy
completion,

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20 g. the second processing facility being operated for
synchronization, by overwriting, of the remote volume s onto the
remote volume s - 1, and
at the first storage device (SDL):

h. the first processing facility being operated for
25 synchronization, by overwriting, of the local auxiliary volume
s -1 onto the frozen selected data object, and
mirroring being repeated after completion of step f, by
default repetition of the steps a to h, unless mirroring break is
commanded.

Claim 47 (Previously Presented). The system according to
Claim 46, further comprising:

the local auxiliary volumes, the source volumes and the
remote volumes being selected from the group consisting of
volumes, virtual or logical volumes, and files.

Claim 48 (Original). The system according to Claim 46,
further comprising:

a complete mirrored copy of the selected data object
comprising updates entered thereto at the time t - 2 being stored
5 in the at least one remote storage device at time t.